What is claimed is:

1. A droplet ejection apparatus comprising:

a drive signal generator for generating a set of drive signals including a plurality of drive pulses;

a drive pulse selector for selecting a set of drive pulses in accordance with a print datum of each pixel; and

a head for ejecting a droplet from a nozzle provided corresponding to a channel, by changing a volume of the channel according to the set of drive pulses selected,

wherein, the drive signal includes a micro-vibration pulse as one of the drive pulses to generate a micro-vibration of meniscus in the nozzle in such a degree that the droplet is not ejected, said micro-vibration pulse being formed of a rectangular wave which include at least one micro-vibration pulse having a pulse width of (2n) AL, where AL is 1/2 of the acoustic resonance period of the channel, and n is an integer not smaller than 1.

2. The droplet ejection apparatus of claim 1, wherein the micro-vibration pulse includes a rectangular wave having a pulse width of 2 AL.

3. The droplet ejection apparatus of claim 1, wherein the micro-vibration pulse includes a rectangular wave having a pulse width of 1 AL and a rectangular wave having a pulse width of 2 AL.

4. The droplet ejection apparatus of claim 1, wherein the micro-vibration pulse is applied before an ejection pulse for ejecting the droplet is applied.

5. The droplet ejection apparatus of claim 1, wherein the rectangular wave having a pulse width of (2n) AL is applied at the last timing of the micro-vibration pulse.

6. The droplet ejection apparatus of claim 5, wherein the ejection pulse is applied after 1 AL from the time when the rectangular wave having the pulse width of (2n) AL is applied at the last timing of the micro-vibration pulse.

7. The droplet ejection apparatus of claim 1, wherein the ejection pulse for ejecting the droplet comprising:

a first pulse formed of a rectangular wave to expand the volume of the channel, and 1 AL later, restoring it to an original state; and

a second pulse formed of a rectangular wave to reduce the volume of the channel, and a prescribed period later, restoring it to the original state,

wherein a voltage of the first pulse Von is higher than a voltage of the second pulse Voff.

8. The droplet ejection apparatus of claim 7, wherein the micro-vibration pulse is formed of a rectangular wave which reduces the volume of the channel, and subsequently restore to the original state, and a voltage of the micro-vibration pulse is same as the voltage Voff of the second pulse in the ejection pulse.

9. The droplet ejection apparatus of claim 1, wherein the maximum extrusive amount of the meniscus by the micro-vibration pulse is not larger than a radius of the nozzle.

10. The droplet ejection apparatus of claim 1, wherein the head comprises an electric - mechanical conversion element which changes the volume of the channel by the application of at least one of the ejection pulse or the micro-vibration pulse.

11. The droplet ejection apparatus of claim 10, wherein the electric - mechanical conversion element comprises a piezoelectric material which forms a partition wall between adjacent channels, and which is deformed in a shearing mode by applying a voltage.

12. The droplet ejection apparatus of claim 1, wherein the droplet is an ink droplet.

13. A drive method for a droplet ejection head, comprising:

generating a set of drive signals including a plurality of drive pulses by a drive signal generator;

selecting a set of drive pulses in accordance with a print datum of each pixel by a drive pulse selector;

ejecting a droplet by changing a volume of a channel according to the set of drive pulses selected, from a nozzle of the droplet ejection head, the nozzle being provided corresponding to the channel,

wherein a micro-vibration pulse is applied onto the droplet ejection head to generate a micro-vibration of meniscus in the nozzle in such a degree that the droplet is not ejected,

wherein, the drive signal includes a micro-vibration pulse as one of the drive pulses to generate a micro-vibration of meniscus in the nozzle in such a degree that the droplet is not ejected, said micro-vibration pulse being formed of rectangular waves which include at least one micro-vibration pulse having a pulse width of (2n) AL, where AL is 1/2 of the acoustic resonance period of the channel, and n is an integer not smaller than 1.

14. The drive method of claim 13, wherein the micro-vibration pulse includes a rectangular wave having a pulse width of 2 AL.

15. The drive method of claim 13, wherein the micro-vibration pulse includes a rectangular wave having a pulse width of 1 AL and a rectangular wave having a pulse width of 2 AL.

16. The drive method of claim 13, wherein the micro-vibration pulse is applied before an ejection pulse for ejecting the droplet is applied.

17. The drive method of claim 13, wherein the rectangular wave having the pulse width of (2n) AL is applied at the last timing of the micro-vibration pulse.

18. The drive method of claim 17, wherein the ejection pulse is applied after 1 AL from the time when the rectangular wave having the pulse width of (2n) AL is applied at the last timing of the micro-vibration pulse.

19. The drive method of claim 13, wherein the ejection pulse for ejecting the droplet comprising:

a first pulse formed of a rectangular wave for expanding the volume of the channel, and 1 AL later, restoring it to an original state; and

a second pulse formed of a rectangular wave for reducing the volume of the channel, and a prescribed period later, restoring it to the original state,

wherein a voltage of the first pulse Von is higher than a voltage of the second pulse Voff.

20. The drive method of claim 19, wherein the micro-vibration pulse is formed of a rectangular wave to restore the volume of the channel to the original state after the

volume of the channel have been reduced, and a voltage of the micro-vibration pulse is same as the voltage of the second pulse Voff.

21. The drive method of claim 13, wherein the maximum extrusive amount of the meniscus by the micro-vibration pulse is not larger than a radius of the nozzle.

22. The drive method of claim 13, wherein the head comprises an electric - mechanical conversion element for changing the volume of the channel by the apply ion of at least one of the ejection pulse or the micro-vibration pulse.

23. The drive method of claim 22, wherein the electric - mechanical conversion element comprises a piezoelectric material which forms a partition wall between adjacent channels, and which is deformed in a shearing mode by applying a voltage.

24. The drive method of claim 13, wherein the droplet is an ink droplet.